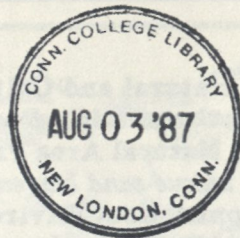


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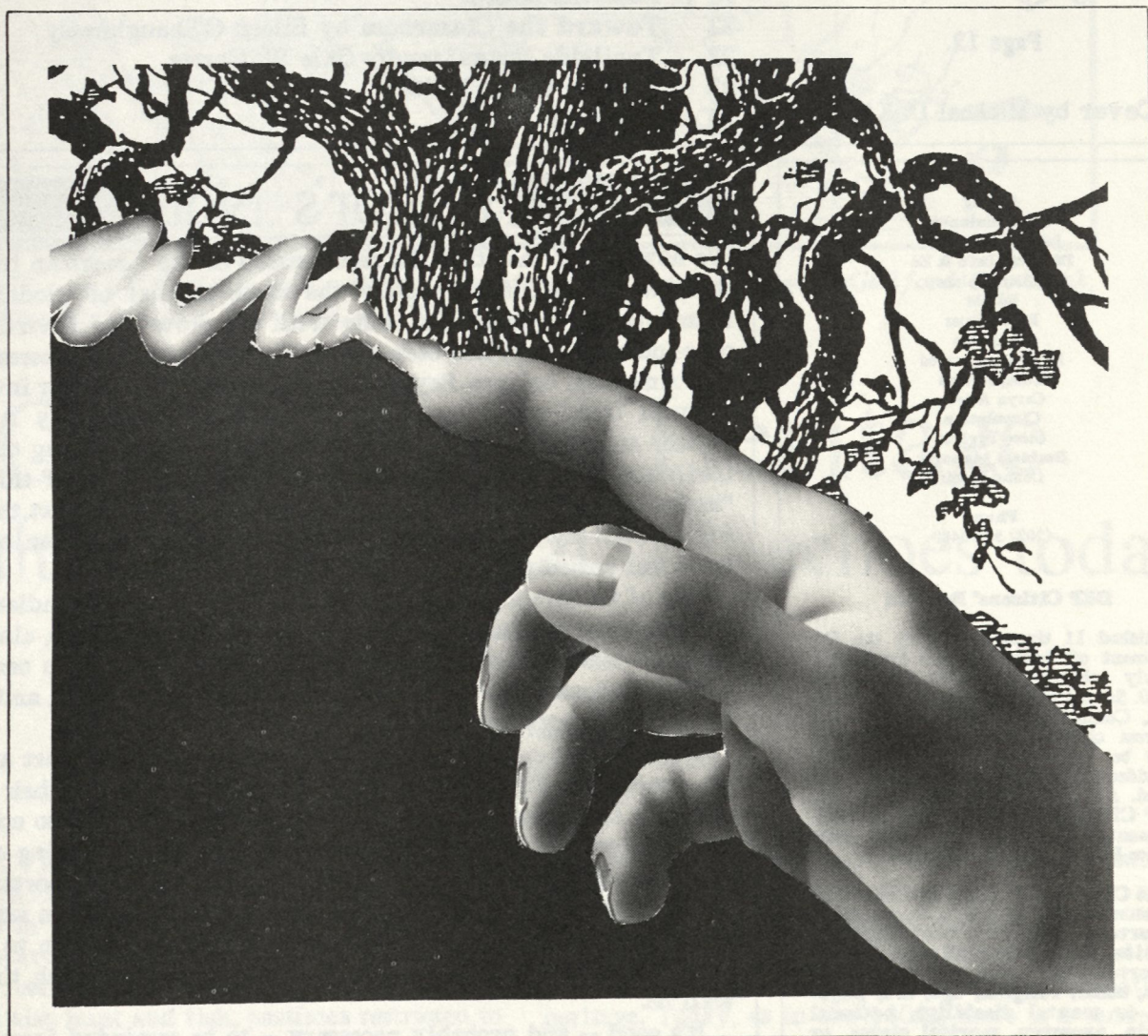
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Citizens' Bulletin

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The Connecticut Department of Environmental Protection

Our Puritan Heritage



When culture touches nature.

Citizens' Bulletin

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Cover by Michael D. Klein

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Editor's Note

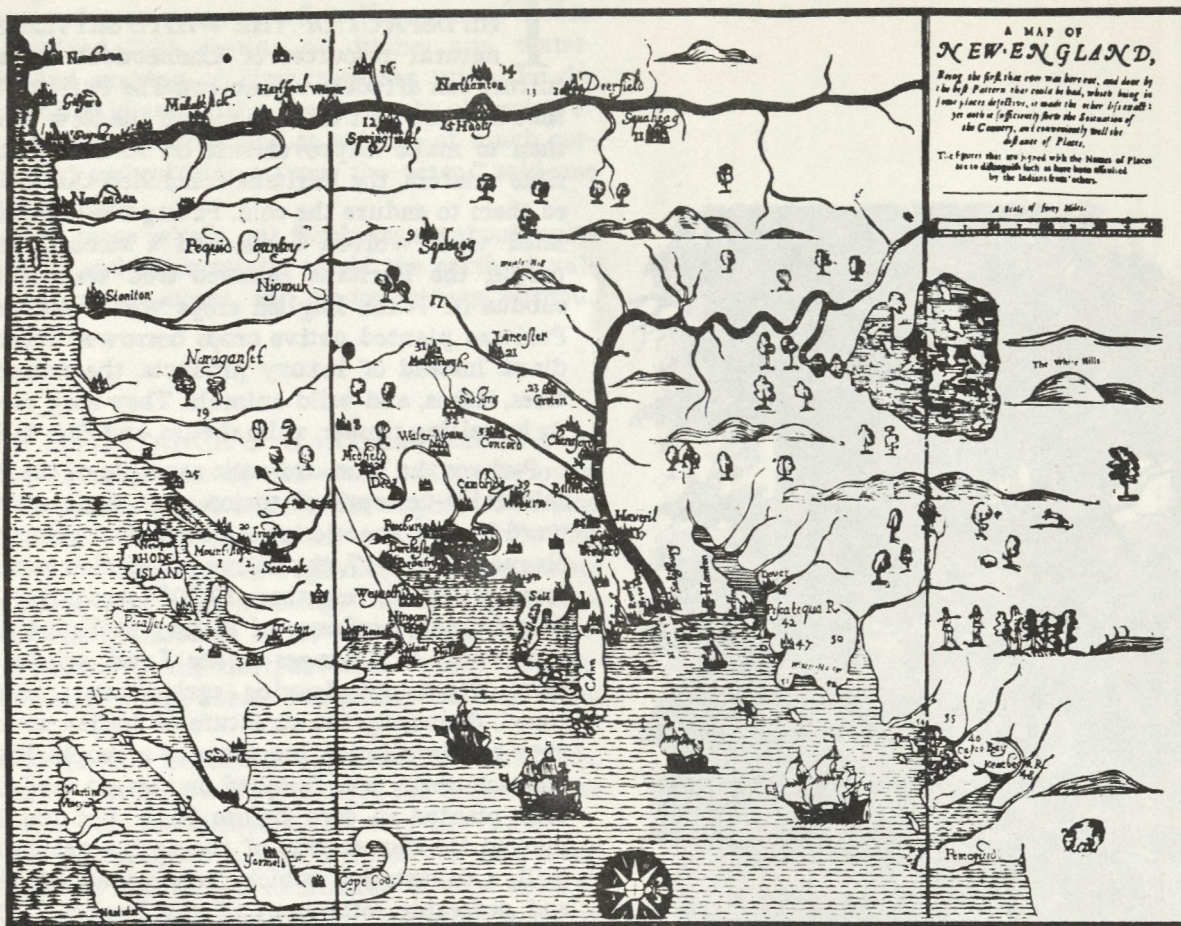
We now know that the relationship of the American Indians to their world is fundamentally the same as that of modern environmentalists to theirs. So, along with the growth of environmental consciousness, there has been a simultaneous surge of interest in Native American culture. Beyond that, however, yet another interesting cultural trend seems to be taking place. Contemporary American Indians are themselves now in the process of rediscovering their own traditions, traditions which almost got lost as a result of things like "assimilation," Wounded Knee, and alcohol. And if, in fact, this rediscovery does not continue, an already endangered tradition could become lost entirely.

One of Ed Sarabia's functions as DEP's coordinator of Indian affairs is to visit the maximum security prison at Somers. There, along with spiritual leaders from other Indian tribes, Sarabia leads ceremonies and discussions on environmentalism, Indian spirituality, and responsibility in today's world.

The inmates — Indian and non-Indian — who take part are what we could call "hard guys," men who, by virtue of their present situation and personal understanding of existence, tend to operate on the stark edge of things. For them, the problem of finding a correct relationship to the world is of passionate, immediate importance. It is not a theoretical exercise; it means the difference between sanity and madness, between hope and despair. The inmates hold on to the traditions as if they were matters of life and death, which they may well be.

It's good — and probably necessary — to be reminded from time to time of how deadly serious these matters are.

R.P.



A 1677 map of New England, with north to right. Shown are Newhaven, Guilford, Saybrook, Stoniton, Mattabesick, Hartford, and Winsor.

Our Puritan Heritage

A cultural impact that still echoes today

by
Carol Davidge
 Public Information Coordinator
 State Museum of Natural History

CONNECTICUT has been a land of abundance throughout its recorded history. The Europeans who arrived in the 1630s found vast timberlands, a resource so scarce in England that, after 1543, Parliament had restricted the cutting of wood. The new-landers could also hunt and fish, pastimes restricted to the nobility in England. The natural resources in the

New World provided more than enough for subsistence, and so the settlers prospered, becoming vital suppliers in England's international trade.

Today, Connecticut continues to prosper. And it is still vitally important to guard the state's natural heritage. Today, as in the 1600s, there is a tendency toward blind progress, the misuse of our natural resources, and perhaps the repetition of the mistakes of the past.



The Rev. Thomas Hooker brought his party to Connecticut in 1735. (Reprinted from "Yesterday's Connecticut.")

THE IMPACT OF THE WHITE SETTLERS on the natural resources of Connecticut reveals how culture can affect environment. The Puritans believed that God had sent them to master the New World, and then to make improvements on it. Confronting terrible winters, the Puritans concluded that God wanted them to endure the cold. Facing a wilderness populated with wolves, bears, and a strange, unknown people, the Puritans believed God wanted them to subdue it. When English crops would not grow, the Puritans planted native crops borrowed from the Indians. Instead of luxury products, the settlers found trees, fishes, and wild animals. They soon made profits by selling timber, animal furs, and fish to England.

Perhaps the most dramatic example of the Puritans' culturally-determined vision was their attitude toward Native Americans. As the result primarily of a plague in 1616-17, the native population was reduced from 70,000 to less than 12,000. According to William Cronon, professor of history at Yale University and author of *Changes in the Land*, whole villages were wiped out, leaving agricultural fields abandoned, damaging the structure of Indian society, and very nearly eliminating them as a people. Plymouth, Massachusetts, was founded on cleared land that had been planted in corn before 1616. But the Puritans viewed the devastation of the native people as God's will, a devastation which "made way for the quiet and peaceable settlement of the English." This was fundamentally the same attitude the Puritans took toward natural resources.

THE PURITANS WERE BEWILDERED by New England's climate. Because their new home lay on a more southerly latitude than England, they had expected a warm climate. But crops brought from the more temperate England would not grow. As a result, some Colonists starved. Many more would have perished, observed Kevin McBride, director of the Public Archaeological Survey Team (PAST), if Native Americans had not shared their wigwams and their corn, put on major hunts to provide meat for the newcomers, and taught them how to grow and cook American crops. Again, true to character, the Puritans attributed this generosity to God's master plan.

Investors in the Massachusetts Bay Company had hoped that the settlers would grow valuable spices and tropical plants. Ultimately, however, according to Karen Kupperman, professor of history at The University of Connecticut, they were forced to conclude that "fish, furs, tobacco, and wood products... would be superior to quick and easy wealth, which undermines the character of the people and the foundation of society."

So the settlers went about clearing forests for farmland. They believed that European agricultural

technology would make the climate "healthier, warmer, and more temperate," as Kupperman wrote. This involved "the casting of ditches and water-courses, and making of fires, together with the destroying of wild and filthy beasts... the cleansing of the air, clearing of fogs, and so ridding of much corruption and unhealthiness from the place," said one investor in 1624.

Based on these beliefs, our forebears set about, quite consciously and deliberately, to rid the earth of valuable natural resources, and to use others without restraint.

THE IMPORTANCE of the Connecticut River to the development of the state cannot be over-emphasized. (The state's name is the anglicized version of "Quinnehtukqut," the Indian word for "the long tidal river.") "Even in the beginning, the importance of the River was very striking," noted Kupperman. "Boston was founded in 1630, and by 1635, Europeans had settled in the Hartford area. People were going 100 miles when there was plenty of land closer by."

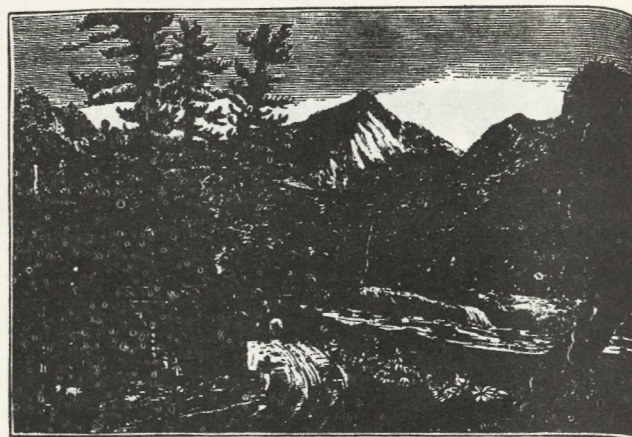
The River was important because of the fur trade, and because England wanted to head off claims by the Dutch who had established a fort near Hartford.

In just 20 years, the fur trade killed off the beaver. Although the beaver was eliminated in most areas of Southern New England by 1640, trading in their furs continued into the 1650s along the Connecticut River as trappers brought furs down the river from farther north.

As the fur trade diminished in Connecticut, settlers turned to agriculture. Beavers made an indirect contribution to this too because, with their dams gone, the drained land that emerged was ideal for growing crops or for grazing cattle.

But the finest farmland in the state was along the banks of the Connecticut River, where flooding had deposited deep layers of silt and left soils free of boulders and rocks. According to Rudy J. Favretti, professor of landscape and architecture at The University of Connecticut and author of *Highlights of Connecticut Agriculture*, as late as 1800, 94 percent of Connecticut residents were engaged in agriculture. During the American Revolution, Connecticut was known as "the provisions state," as it provided more food to George Washington's Continental Army than any of the other original 13 states.

The greatest salmon runs in the New World were on the Connecticut River. But, in 1797, a dam was built at Turners Falls, Massachusetts, which prevented the salmon from going up river to spawn. "By 1820, the salmon were extirpated," observed Walter Whitworth, professor of renewable natural resources at The University of Connecticut.



The natural resources the settlers found in the New World provided more than enough to meet needs. (Reprinted from "Yankee Life," Barrows Mussey, ed.)



Whaling, taught to the settlers by the Indians, became an important industry. (From "Yankee Life.")

The population of shad, an oily-tasting, less-favored, but very useful fish, was greatly reduced. Shad was used for fertilizer, as well as a food for slaves and hogs. Since only 40 percent of the people in Connecticut during the Colonial period were considered freemen, much of the population ate shad, said Whitworth. Shad was so plentiful that a thousand fishes could be purchased for a dollar and it was so unpopular that it became undesirable to admit to being a "shad-eater."

Smaller rivers and streams provided water power for grist and sawmills, which often became the centers of communities. Eventually, the same streams made Connecticut a leader in the industrial revolution. The state was a major supplier of textiles during the Civil War, and supplied fine woollens for the inaugural suits of Presidents Theodore Roosevelt and William McKinley.

From the beginning, Connecticut's European settlers used the fish in the sea for food, and hay from salt marshes for their cattle. Along the coast, Indians taught the settlers how to hunt whales, using wooden harpoons and going out in small boats when schools of whales came close to the shore. Whaling became an important industry, with England demanding as much oil as could be produced. New London was a center of whaling activity. Among those who went to sea in whaling ships were Native Americans. "Pequod," an early English spelling of "Pequot," one of Connecticut's Native American tribes, is also the name chosen by Herman Melville for the ship that pursued the white whale in *Moby Dick*.

IN ENGLAND, timber was a critical commodity, where a tree could only be felled by permission of Parliament. Before the New World was colonized, England had been dependent on the Baltic states for wood. Beginning in the 17th Century, Britannia ruled the waves with vessels built of American wood.

The great white pine proved invaluable. Many stood 250 feet high and five feet in diameter. They were used as shipmasts. No trees of this size existed anywhere in Europe. The Crown sent emissaries into the New England forests to mark all pines of 24-or-more inches in diameter so that they would be used only by the King. A fine of 100 English pounds was levied against anyone who cut a pine with the "King's mark," but the rule was in fact unenforceable. Colonists cut the straightest and largest for buildings and furnishings. By 1820, there was "reason to fear that this noblest of all vegetable productions will be unknown in its proper size and splendor to future inhabitants," wrote naturalist Timothy Dwight. Deforestation, in the initial contact period and during lumbering a century later, caused most of these mighty trees to disappear.

Even during the Colonial epoch, the forests were cut down for fuel as though they would magically appear. New Englanders probably "consumed more than 260 million cords of wood for fuel between 1630 and 1800," while a typical home might use 30 or 40 cords of wood each year. "This can best be visualized as a stack four feet high, four feet wide, and 300 feet long," wrote William Cronon.

In addition, trees were felled and burned simply to clear land. By 1800, according to Favretti, 60 percent of Connecticut was cleared and in agricultural production. In 1821, Dwight found "no more than 20 miles of wooded land" along the 240 miles between Boston and New York (quoted in Cronon).

Such profligacy often caused severe fuel shortages for communities within 15 years of settlement. By 1800, New England, like her mother country, was forced to begin heating with coal. Deforestation also resulted in soil erosion and an increase in flooding.

SO MUCH of what creates the "Good Life" in Connecticut is traceable to the combination of our cultural and natural heritage. For example, the geology of the state has an impact on the daily lives of people today, as it did in the past. According to Michael Bell in *The Face of Connecticut*, "the classic Colonial New England town — a village on a hilltop surrounding a town green," resulted from the Puritan custom of living on high ground to avoid "ill humors" that gathered in valleys. From those hilltops, the original roads brought settlers to their farms just outside the town centers. Today, these routes, while often not the most efficient, continue to be in use.

We also drive along routes that follow the easiest geologic paths. Route 1 along the shore, originally an ancient Indian trail, was the southern route of the Old Boston Post Road which ran, in the 17th century, from Boston to New York via Providence. Route 44, from Boston through Pomfret and Coventry to Hartford, was the middle route of the Boston Post Road. The northern route of the Boston Post Road, or Old Bay Path, linked Boston to Springfield. Interstate-384 cuts through Bolton Notch.

Also inherited from the Indians are colorful place names, as Helen E. Sellers recounted in *Connecticut Town Origins*. "Higganum" designated a rock from which Indians obtained stones for making tomahawks, "Aspinock" is "high ground," and "Mashamoquet" is "great fishing place." The Indian word for "paradise" or "the dwelling place of the spirits," as Lake Webster was called, is Chagoggagoggmanchauggagoggchaubunagungamaugg.

THE FIRST CONSTITUTION in the new world was written in Connecticut in 1639, calling together the state's planters to meet at a General As-



An early New Englander might use from 30 to 40 cords of wood each year to keep warm. (From "Yankee Life.")

sembly once a year. When the Crown sent representatives to confiscate the Charter and place the state under control of Massachusetts, the paper, according to legend, was hidden in a venerable oak tree. The state came under the control of the Crown, but the "Charter Oak," seven feet in diameter, came to symbolize democratic governance. Later, three men from Connecticut helped frame the U.S. Constitution. And one of America's first soil conservationists was Jared Elliot, also a resident of Connecticut. Among the heroes of the American Revolution was General Israel Putnam, second in command to George Washington, and who, at the Battle of Bunker Hill, told his troops: "Don't fire until you see the whites of their eyes." Putnam, a farmer from Brooklyn, Connecticut, gained his reputation as a man of courage after he killed a marauding wolf in its den, a task no one else was willing to perform.

THESE PEOPLE were products of the Puritan culture, a culture which, in many cases created an atmosphere which led to the long-term destruction of natural resources. Through Yankee ingenuity, the descendants of these early settlers harnessed rivers and developed new technologies. They drilled for oil, made clocks, and established a vigorous manufacturing industry. There is a sense, even today, that Connecticut must continue to grow in these ways, with more jobs and more development, but somehow disregarding the protection of our natural resources.

At the same time, people have mobilized to preserve our natural heritage. Governor William A. O'Neill said in his inaugural address that we must preserve our natural heritage as vigorously as we protect our cultural heritage. The Atlantic salmon, for example, is returning to the Connecticut River, as the result of an effort that began in 1967. For more than 200 years it was gone from the state. As Timothy Dwight predicted in 1820, none of the mast pines now remains in Connecticut. "The only thing approaching pre-Colonial pine stands are the cathedral pines owned by The Nature Conservancy, which are 200 years old and are smaller than the mast pines," said Glenn Dreyer, assistant director of the Connecticut Arboretum, Connecticut College.

"All organisms are interrelated in a big web, so a lost species isn't an isolated loss — it has a relationship to others and a whole group of other things become involved," said James Slater, professor of ecology and environmental biology at The University of Connecticut. As a further indication of this growing awareness, in 1985 the Legislature established the State Museum of Natural History in Storrs, and this year funded the newly-created Office of State Archaeology.

We now understand that Connecticut's natural and cultural heritage are interrelated. One affects the other. The task before us now is to use that understand-

ing in proceeding wisely, recognizing both that our natural resources are indeed finite, and that we share a profound responsibility to those who follow us.

Suggestions for Further Reading

Bell, Michael. *The Face of Connecticut*. (Hartford: State Geological and Natural History Survey, DEP Bulletin 110, 1985.)

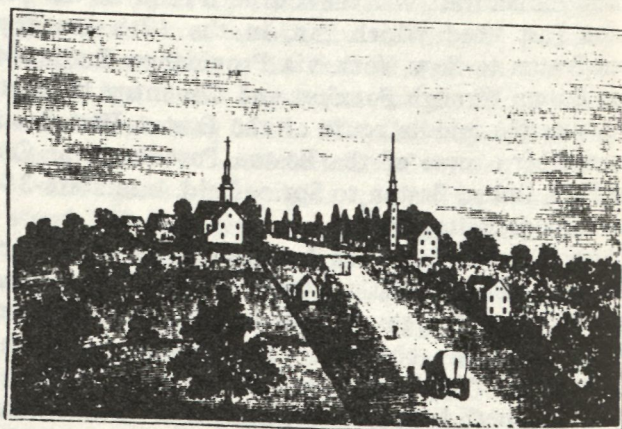
Cronon, William. *Changes in the Land*. (New York: Hill and Wang, 1983.)

Favretti, Rudy J. *Highlights of Connecticut Agriculture*. (Storrs, University of Connecticut College of Agriculture and Natural Resources.)

Kupperman, Karen Ordahl. "The Puzzle of the American Climate in the Early Colonial Period," *American Historical Review*, 1984, pp. 1262-1269.

Sellers, Helen E. *Connecticut Town Origins*. (Conn.: Pequot Press, 1973.)

Vaughan, Alden T. *New England Frontier*. (Boston: Little Brown, 1965.)



The classic New England town was built to avoid "ill humors" in the valleys. (From the "Face of Connecticut," by Michael Bell.)

A Closer Look at the Seaweeds

Text and Illustrations
by
Penni Sharp

WHEN SUMMER is in full swing, many of us are lured to the shore, where pleasant sea breezes provide refreshing contrast to the still heat of inland areas. The coastline is an attraction to many Connecticut residents, and crowds of people head for the beaches every summer.

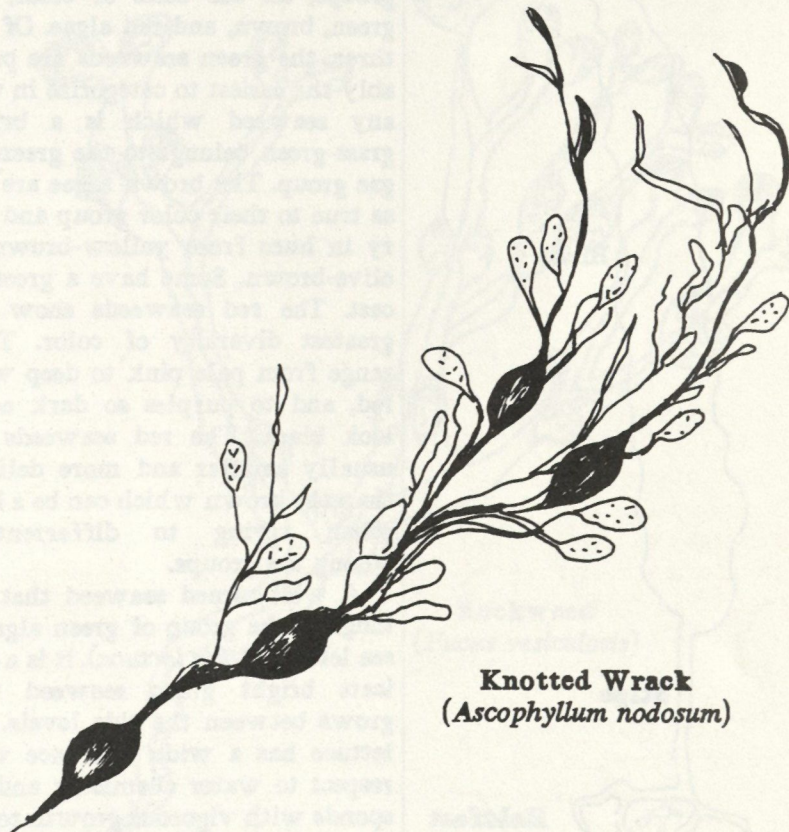
I know of few better ways to relax than to walk along a beach. There is always something to discover at the tide line. Although beach-combing, with the advent of plastic products, isn't what it used to be, there are still treasures to be found, such as an unbroken shell, a bit of sea glass, or a particularly attractive piece of driftwood. Of course, the largest component of material cast up by waves and tides is seaweed. Most of us pay scant attention to the great variety of these marine plants, yet they are a most interesting group of living things and have great importance to our lives.

SEaweeds are most abundant on rocky shores, as most of them need rocks on which to attach. Sandy beaches, while not a good habitat for the growth of seaweeds, are nonetheless good

places to look for them. This is particularly true following storms, as the seaweeds break loose and are washed ashore by the action of waves.

Seaweeds, or more accurately, marine algae, share certain common characteristics. They are simple in body structure, lacking true roots, stems, or leaves. The counterpart of roots is called a "holdfast," and serves to anchor the plant. Unlike true roots, the holdfast does not absorb nutrients. Between the holdfast and leaf-like blade is a stem-like structure known as the "stipe." Marine algae may have either a single blade or a branching form. This part of the plant is called the "thallus." At most, these simple plants comprise only a few different types of cells. Seaweeds are soft flexible plants which depend upon water for support.

Scientists divide the shore laterally into three separate zones. There is the *littoral* zone which covers the area between high and low tides.



Knotted Wrack
(*Ascophyllum nodosum*)

Plant life in this zone must be able to tolerate exposure to sun and air and complete submergence at regular intervals.

The second, or *laminarian* zone, extends from the low-water mark to a depth of 15 fathoms. The third zone is the *coralline* and extends to a depth of about 50 fathoms. Different seaweeds are adapted to grow in these different zones.

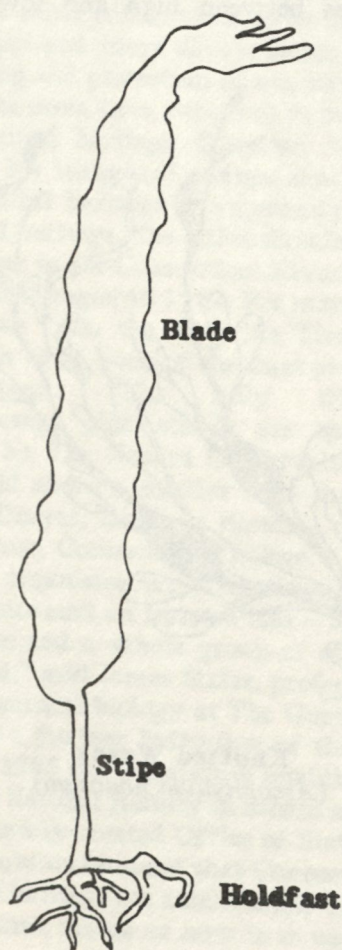
Few people are aware of the important role that marine algae play in the balance of life. Two thirds of the earth's surface is covered with water, and the algae essentially constitute the plant life that exists in this vast area. Unlike land plants which derive nourishment from the soil via their root systems, algae are able to directly absorb nutrients

which are held in solution in water. As algae grow and metabolize, they release oxygen and convert inorganic substances into organic material, making it available to animals.

In addition to their inestimable importance to life on our planet, a number of the marine algae have interesting economic uses. Some species of kelp are harvested as a source of iodine and also used in the commercial production of potash. Irish moss is an edible seaweed, as is dulse, which is widely consumed in Ireland and Scotland. The edible nest of the Chinese bird's-nest soup is constructed of *Gracilaria spinosa*, a seaweed of Asiatic waters. Seaweeds are widely used as fertilizers by farmers and gardeners of coastal regions.



Irish Moss
(*Chondrus crispus*)



MARINE ALGAE are divided naturally into three major groups, on the basis of color, the green, brown, and red algae. Of the three, the green seaweeds are probably the easiest to categorize in that any seaweed which is a bright grass-green belongs to the green algae group. The brown algae are not as true to their color group and vary in hues from yellow-brown to olive-brown. Some have a greenish cast. The red seaweeds show the greatest diversity of color. They range from pale pink to deep wine red, and to purples so dark as to look black. The red seaweeds are usually smaller and more delicate than the brown which can be a help when trying to differentiate among the groups.

A well-named seaweed that belongs in the group of green algae is sea lettuce (*Ulva lactuca*). It is a delicate bright green seaweed that grows between the tide levels. Sea lettuce has a wide tolerance with respect to water chemistry and responds with vigorous growth to the presence of nitrogen. It may grow abundantly in waters that are

somewhat polluted, particularly near wastewater outlets. Thus its presence in water is not always a good sign.

Sea lettuce attaches to rocks but has almost no stipe (or stalk) at the point of attachment. It is a thin seaweed, only two cell layers thick, with the cells arranged back to back. Sea lettuce is an edible plant. When washed ashore and exposed to the sun, it becomes extremely brittle and its bright green color bleaches to greenish white.

Many common seaweeds belong in the group of brown algae. The rockweeds which grow attached to rocks in the intertidal zone are among them.

One species of rockweed, *Fucus vesiculosus*, is easy to recognize. It has paired air bladders and a distinct midrib, and has a regular branching pattern. *Fucus* plants attach to rocks by means of a holdfast. The air bladders permit the seaweed to float at the water's surface at high tide. This rockweed is exposed at low tide and is adapted

to withstand the extremes of complete submergence to exposure to hot sun and drying wind. Rockweeds are important to several kinds of marine life and provide shelter to mussels, periwinkles, crabs, and other animals during low tide periods.

Another common seaweed of the rocky shores is knotted wrack (*Ascophyllum nodosum*) which at first seems almost identical to *Fucus*. However, knotted wrack lacks the strong midrib, is irregularly branched, and its large air bladders are not paired. This algae grows in a zone just below the rockweeds at the mid to lower intertidal levels. It forms thick mats over rocks which become very slippery to walk upon. This species is also important to the many creatures of the intertidal zone.

The largest of the marine algae belong in the brown group. These are the kelps, some species of which can attain a size of 100 feet. One of the kelp species frequently found along Connecticut shores is common southern kelp (*Laminaria agardhii*), which ranges in length from 10 to 36 feet. All members of this genus are plants of the laminarian zone and grow at depths as far down as 50 feet. It is washed ashore following storms. This single-bladed seaweed is yellowish brown and thick with wavy edges often frayed. A stout holdfast anchors the *Laminaria* to its substrate. Stem length varies depending upon the depth of the water.

One of the commonest of the red algae to be found along our shoreline is Irish moss (*Chondrus crispus*). It ranges in color from a purplish red to a greenish brown. If exposed to the sun, it bleaches to a yellowish white. Irish moss is a bushy, crisp-looking seaweed. It forms a zone between the rockweed at the mid to upper intertidal levels and the kelps at the beginning of the laminarian level.

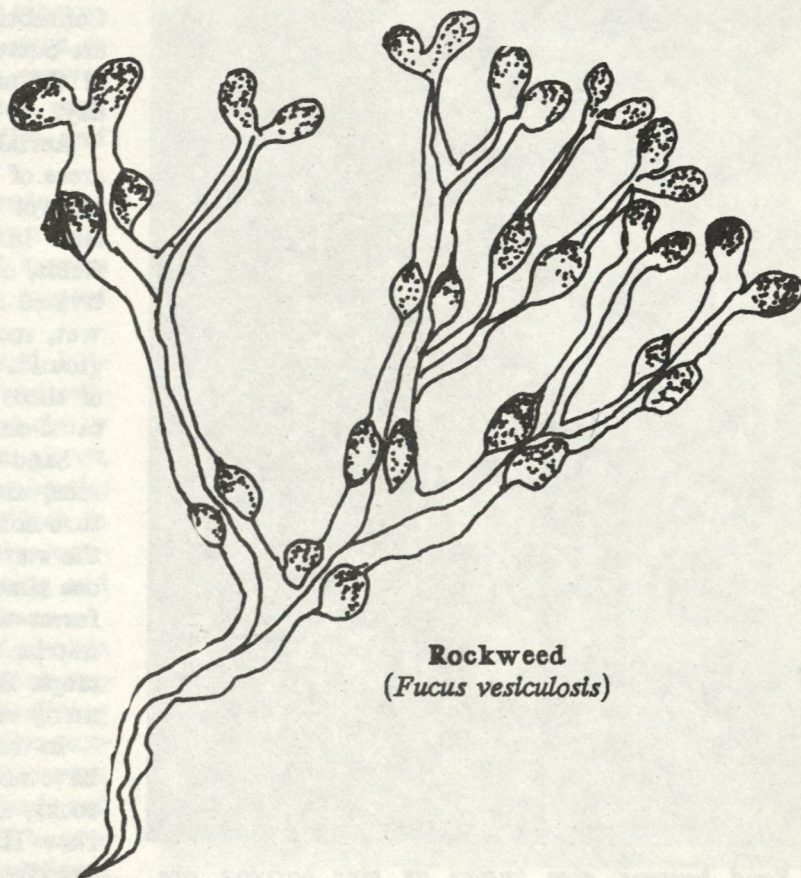
IRISH MOSS IS a popular edible seaweed. "Carrageenin" is made from Irish moss and is widely used as a gel in industry and pharmacy. It is also used as a thickener in soups and as a binder for milk and ice-cream.

Many of the red seaweeds are lacy and delicate. Included are the banded weeds, (*Ceramium spp.*) Close examination of these seaweeds will reveal the zebra-like stripes that occur at regular intervals. The tips of the youngest branches resemble minute lobster claws. There are several species of banded seaweed, which are difficult to distinguish. The most commonly occurring, *Ceramium rubrum*, is extremely variable, ranging in

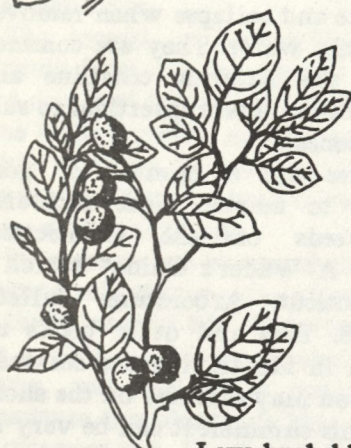
color from wine red, to pink, to brown.

Banded seaweeds are soft and delicate and collapse when removed from the water. They are common along the Atlantic coastline and grow in the lower intertidal to subtidal zones.

There are a number of good guides to marine algae including "Seaweeds of the Connecticut Shore: A Wader's Guide" which is Connecticut Arboretum Bulletin No. 18. This and other books are useful in identifying the seaweeds that you may discover on the shoreline this summer. It can be very rewarding to learn to know some of these interesting and important plants. ■



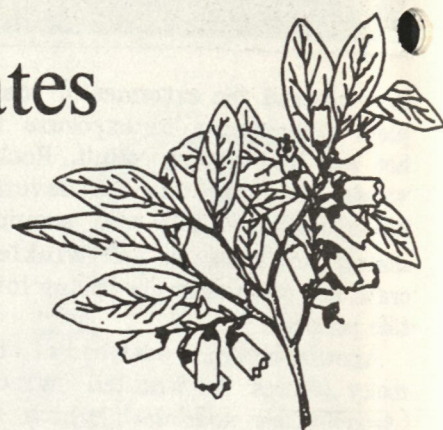
Rockweed
(*Fucus vesiculosus*)



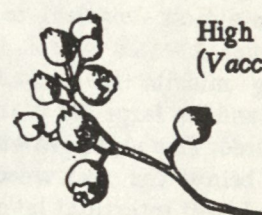
Low bush blueberry
(*Vaccinium vacillans*)

Governor Designates Two Natural Area Preserves

by
Diane Mayerfeld
Senior Environmental Analyst
Natural Resources Center
Illustrated by
Ann Pesiri Swanson



High bush blueberry
(*Vaccinium corymbosum*)



Sand barrens, also known as pine barrens, are threatened habitats. This photo of Wharton Brook was taken in 1936. (Photos: George E. Nichols)

On April 22, 1987, Governor William O'Neill designated parts of Wharton Brook State Park and Hopeville Pond State Park as State Natural Area Preserves, the seventh and eighth areas so designated in Connecticut. The governor explained that both areas are outstanding examples of sand barren habitat, one of the most threatened habitat types in the state today.

Aerial photographs taken in 1934 show extensive areas of agricultural land in the central and eastern parts of the state. Here and there, forest, scrub, or open land interrupts the tidy patchwork of cultivated fields, orchards, and pastures. Some of these uncultivated areas are, as one might expect, on unusually wet, rocky, or steep lands, but a few are on level ground. On further inspection, it turns out that many of those level areas which were uncultivated are located on sand barrens.

Sand barrens, also known as sandplains or pine barrens, are areas of very sandy soil with low moisture-holding capacity and few soil nutrients. Most of the state's sand barrens were probably cultivated at one time, but once the humus layer from the former forest was exhausted, the sandy soils had almost no nutrients or water-storing ability to offer annual crops. By 1934, efforts at cultivation had ceased at many sand barrens.

In the 50-odd years since then, however, these areas have not been left alone. Level, well-drained, free of rocks, and located near major urban centers, such as New Haven and Hartford, sand barrens have been heavily used for residential, commercial, and industrial development. Many have been quarried for sand to be used in road construction. (In fact, many people

are aware of sand barrens only as "gravel pits." When sand barrens reach this point, their biological communities have been severely degraded, if not destroyed.) As a result, few sand barrens have remained in a natural condition. In response to this situation, former DEP Commissioner Stanley Pac recommended designation of two of Connecticut's best remaining sand barrens. Governor O'Neill, in approving this recommendation, stated, "These areas will be kept free of development and managed for the special biological communities associated with sandplain habitats."

Sand barrens have distinctive vegetation associations which vary with specific history and physical conditions. Sandplains which have been severely disturbed by plowing, quarrying, or the growing problem of dirt biking appear as open barrens where patches of bare sandy soil alternate with lichens, grasses, and other low, perennial plants.

Because sand barrens are naturally dry areas, they are often prone to fire. As a result, many sand barren plants have evolved special adaptations to fire. Pitch pines, perhaps the quintessential sand barren plants, have thick insulating bark and recessed buds which quickly resprout after a fire. In fact, pitch pine seeds germinate best in exposed mineral soil, like the forest floor after a fire. Young oaks are more easily killed back by fire, but they develop extensive root systems whose stored energy allows them to quickly regrow. Grasses, such as little bluestems, and shrubs, such as blueberries, huckleberries, and sweetfern, also recover easily from occasional fires. Previously burned sand barrens support various associations of these fire- and drought-tolerant plants.

Sites which have avoided all disturbance, including fire, for long periods are usually dominated by a mixture of oaks. The understory in forested sand barrens is usually sparse, consisting of club mosses, spotted wintergreen, and a few pink lady's slippers.

Sand barrens are noted for their moth and butterfly populations. Several species of moths and butterflies, including buck moths, pine devils, and sleepy dusky wings, feed exclusively on sand barren plants, such as bear oaks. Other insects, such as tiger beetles and velvet ants, also require sand barren habitat. In addition, birds such as whip-poor-wills and pine warblers prefer pitch pine sand barrens for nesting and are rarely seen breeding elsewhere in the state.

Governor O'Neill's designation of two sand barrens as State Natural Area Preserves is an important step toward ensuring that this important but declining habitat type will remain a viable part of Connecticut's natural heritage. As Natural Area Preserves, Wharton Brook Sand Barren in Wallingford and Hopeville Pond Sand Barren in Griswold will be protected from development for economic or recreational purposes. Instead, these areas will be studied so we can improve our understanding of the vegetation dynam-

ics of this habitat type. Where necessary, the DEP will conduct limited prescribed burns in portions of the preserves to restore fire-tolerant sand barren plants and the associated insects and birds.

Wharton Brook Sand Barren is located in Wharton Brook State Park. It includes slightly more than 21 acres of pitch pine and oak forest in the northeastern portion of the park. The preserve does not include the swimming pond or beaches, and so it will not interfere with the recreational use of the park. Walking, nature study, and other non-consumptive uses will continue to be allowed in the preserve.

Hopeville Pond Sand Barren is in Hopeville Pond State Park. The preserve includes about 25 acres of mixed pine and oak forest in the area between Route 201 and a park access road. A small picnic area in the southern part of the preserve will continue to be managed as a picnic spot. Together, Hopeville Pond and Wharton Brook Natural Area Preserve will provide valuable aesthetic, educational, and scientific resources for the future.

For more information on sand barren habitats or on the Natural Area Preserves Program, contact the Connecticut Geological and Natural History Survey, Room 553, 165 Capitol Avenue, Hartford, CT 06106, Tel: (203) 566-3540. ■



The pink lady slipper, pictured here, is one of the reasons for preserving the sand barren.

Some Thoughts of a Connecticut Environmentalism

by
Nancy Kriz

HISTORICALLY Connecticut developed slowly. Our cities grew, suburbia expanded, our population increased, all on a regular and predictable basis. Planning concepts emerged and municipalities adopted zoning and inland wetlands regulations, groundwater protection ordinances, hired town planners, etc. It was felt that development was proceeding in an orderly, organized, controlled fashion. We became comfortable and complacent.

Then, dramatically, due to a combination of lower interest rates, the new tax law, the realization that Connecticut is a good place to live, and sky-rocketing land values, development pressures increased. Land use decision-makers on the local level are feeling this pressure. They are valiantly attempting to handle the situation as best they can within their scope of expertise and the limitations set by the lack of planning tools and technical assistance. They are faced with the undeniable facts that previous planning was insufficient and that their original regulations weren't stringent enough. They are realizing that actions taken in one community may now be negatively affecting a neighboring town and that environmental problems are not confined within artificial, man-made boundaries.

The state Legislature has heard the call for help and during this session has responsibly enacted multiple pieces of legislation to strengthen the Inland Wetlands Act of 1972, to create a Land Use Education Council, to additionally fund the Farmland Preservation Program and the Recreation and Natural Heritage Trust, and much more. However, as a society, we

must learn that no amount of legislation or regulation is effective without citizen support. We still are a grass roots nation and a grass roots state. The general public must develop an ethic concerning land use, a comprehension of human needs for open spaces, and a desire to preserve environmental quality.

IF WE SELL YOU OUR LAND, love it as we have loved it. Care for it as we have cared for it. Hold in your mind the memory of the land as it is when you take it. And with all your strength, with all your might, and with all your heart, preserve it for your children." Those words were written in 1855 to President Franklin Pierce by the leader of an Indian tribe in the State of Washington.

How would our forefathers feel if they knew what we have done to their land? Robert Frost, in his poem "The Gift Outright," reminded us that the "land was ours before we were the land's." Connecticut's rich soils, forests, rolling hills, lakes, and rivers were a gift outright. As an unspoken condition of accepting that gift, we assumed the responsibilities for taking care of those resources — the awesome responsibilities of stewardship.

There is an accepted Yankee premise that an individual has the right to do with his land as he pleases. This is an understandable concept, given the precepts of democracy. However, it holds true only when "do with" is coupled with an understanding of and love for that land. There are times when the common good, the general welfare, overrules the individual's rights. Inappropriate use or abuse of a piece



The author was presented with a special award by Governor William A. O'Neill for her significant contribution to the stewardship of public lands and natural resources. (Photo: R. Paler)

of land can create one of those philosophically controversial situations. Almost without exception, misuse is related to monetary gain. Anyone can own land, but owning unfortunately does not necessarily entail possessing a sense of respect and accountability for the land.

On the other hand, one can feel responsible for land one doesn't own. Each and every Connecticut citizen should be able to view the Connecticut River, or a privately-owned forested tract in the northwest corner of the state, or a cornfield in Tolland County, or a red maple swamp in Woodstock and feel, "This belongs to me. It belongs to me because I enjoy seeing it, I care about it, and I want to be responsible for helping to protect it."

So many of our state's citizens have become isolated from the land itself because they reside in urban and suburban areas where buildings and pavement are often the most visible features of the landscape. They cannot see the land, so they have lost their relationship to it. This should urge us to increase our efforts to acquire recreational properties in densely populated sections. A relationship to the land and opportunities to enjoy it are essential to instilling concern and awareness.

PERHAPS, IN THE ENVIRONMENTAL FIELD, there have been accomplishments for which we can justly give ourselves a pat on the back. We certainly cannot be very proud of how we have managed our finite natural resources. As Michael Bell ad-

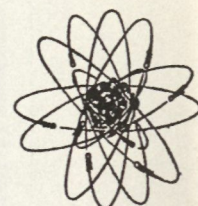
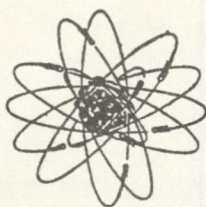
monishes in *The Face of Connecticut*, "We have often let ourselves get too caught up in the human ability to do." In so "doing," in acting without thoughtful planning, in not paying heed to that old "better safe than sorry" axiom, we have contaminated our groundwater, poisoned our wildlife with pesticides, built where we shouldn't have built, risked our own health with improper disposal of toxic wastes, polluted our air and surface waters, developed our prime agricultural lands, and destroyed our wetlands.

Fortunately, we have begun to recognize the errors of our ways. We are attempting to make amends, to reconcile our habits within the limitations imposed by the earth.

As Connecticut citizens, however, we must realize that our legislators, our elected officials, our state agencies, and our elected and appointed volunteer local land use regulators, cannot do it all. They need our firm and constant support for their decisions and actions. As citizens, we must develop an understanding of the proper usage of our remaining undeveloped land and a conscience concerning the mismanagement of our non-renewable and renewable natural resources. We must, as Bell reiterates, "not forget the two-way relationships between land and people, for the land will remember even if we do not."

It is time for all of us to begin to think unselfishly. We must make some difficult value judgements now about what is ultimately important — immediate, short-term economic rewards or the preservation of the land for our children and for "generations yet unborn."

Low-Level Radioactive Waste Where do we stand?



by
Leslie Lewis
Citizens' Participation
Coordinator

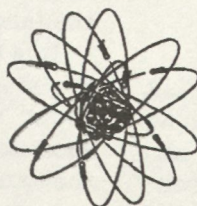
WHEN WE HEAR about radioactive waste, we usually think of spent fuel rods from nuclear power plants or the by-products of atomic arms manufacturing. There was quite a furor recently over the potential siting of a disposal area for these materials in the Northeast. While Connecticut was analyzed as a possible home for this site, it was never seriously in the running. Now, however, we are facing a nuclear waste disposal problem that may hit closer to home.

Many people do not realize that we generate wastes which, while not as dangerous as the "hottest" materials, still pose a threat to human health and the environment. These are the low-level wastes, and they come from a wide variety of sources. For instance, paper and plastic mills often use radioactive sources to measure and maintain the thickness of their products. Analytical labs use machines called gas chromatographs, which contain radioactive materials; power plants generate components, tools, filter media, and clothing; hospitals and doctors' offices produce wastes from diagnostic and therapeutic procedures; and colleges and research facilities also generate these wastes.

Connecticut, with several nuclear power plants, is obviously a generator of high-level radioactive wastes. But the low-level wastes must also be disposed of properly. Until recently, all states have sent these materials to disposal facilities

in South Carolina, Washington state, or Nevada. In 1980, the Congress passed the Low-Level Radioactive Waste Policy Act, which essentially said that each state is responsible for the waste it produces. To avoid having 50 disposal sites spread around the country, Congress encouraged the formation of inter-state compacts; states which did not belong to a compact could be legally excluded from a disposal site.

Connecticut originally entered into compact negotiations with 10 other states, including all of the New England states, New York, New Jersey, Pennsylvania, Maryland, and Delaware. These negotiations continued for 18 months. Although plans went fairly smoothly at first, some of the largest states (and largest generators of waste) dropped out. The reasoning was, if they were going to be chosen as a site, they may as well develop facilities for their use alone. Finally, only four states — Connecticut, New Jersey, Maryland, and Delaware — actually passed compact legislation. Then, in the winter of 1986, Maryland and Delaware dropped out of the compact. At the present time, the only state in the compact with Connecticut is New Jersey.



KEVIN MCCARTHY, Director of the DEP's Radiation Control Unit, is one of two commissioners who represent Connecticut at the compact meetings. Addressing a recent meeting of the Connecticut Environmental Caucus, McCarthy discussed the possible implications of the current compact. With only two states involved, there is a 50 percent chance that the facility will be sited in Connecticut. While other avenues with other states are still being aggressively pursued, we must be prepared for any eventuality. Federal law requires that the decision on the host state, the siting procedure, and a plan be approved by the compact by December of this year.

Many people, alarmed by the possibility of a nuclear waste facility, might suggest that we stop generating all of these wastes. McCarthy pointed out that even if this were feasible, contaminated and activated components alone would require a disposal facility. Like the other hazardous materials generated by our technological society, low-level radioactive waste is a by-product of the processes which have become part of our lives. As long as this holds true, we must be responsible for the safe and proper management of these wastes.

For more information on the low-level radioactive waste compact, contact Kevin McCarthy at 566-5668 or write to him at the Radiation Control Unit, State Office Building, Hartford, CT 06106. ■



We can expect to see an increasing black bear population in Connecticut.
 (Photo: Leonard Lee Rue)

Beware the Black Bear

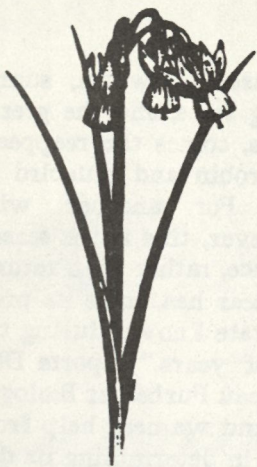
With the onset of warm, sunny days, budding trees, and the greening of grasses, comes the reappearance of the robin and bluebird in Connecticut. For another wild animal, however, this is the season of re-emergence, rather than return. "The black bear has made its presence in our state known during the last couple of years," reports DEP Wildlife Bureau Furbearer Biologist Paul Rego, "and we need help from our residents in determining its distribution."

"It is likely that some black bears are year-round residents of Connecticut, hibernating unseen throughout the winter months," Rego explained. "Because they are opportunistic and hungry by springtime, bears travel extensively in search of food, increasing the likelihood that people will see them."

During winter hibernation black bears may lose 20 to 27 percent of their body weight. When they emerge from their winter den, bears seek out succulent and protein-rich foods, but generally continue to lose weight (since food supplies are still scarce) until summer, when berries and other nutrients become available.

All indications point to an increasing Connecticut population in the foreseeable future. If you are fortunate enough to see a black bear this year, remember the the Wildlife Bureau is extremely interested in *all* sightings of bears in the state. At this point, public observations of black bears are the biologist's best tool for determining their population status. Please report sightings as soon as possible to the Wildlife Bureau's Sessions Woods Wildlife Management Area Office, P.O. Box 1238, Burlington, CT 06013 (584-9830).

Narcissus triandrus



Galanthus elwesii



Alert to Gardeners

by

Faith Thompson Campbell
Plant Conservation Coordinator
Natural Resources Defense Council

THE COLORS OF SUMMER ARE GLORIOUS — especially the bulbs that bloom in our gardens. However, a cloud hangs over the splendid display — the threat of extinction. Preliminary information indicates that some of the original, wild species of tulips, daffodils, and many other bulbs — the patriarchs of our gardens' glories — could, under current market pressures, disappear forever.

Americans plant over a billion bulbs each year. Most of these are hybrids produced in nurseries, especially by that amazing country, the Netherlands. If the flowers that attract you have such popular common names as "baby moon" or "shot silk," or are identified as hybrids, you should feel free to buy them. However, please be careful about bulbs labelled as "wild," "species," or "botanicals," as well as many of the small, early-blooming types. These may have been collected from the wild in Turkey, Spain, South Africa, Central Asia, or even the United States.

Surprising as it seems, some of the bulbs most commonly offered for sale may have been wild-collected, despite the availability of propagated plants. Snowdrops (*Galanthus* spp.) is one such type; Turkey exported 28 million of them in 1983, France another 10 million. Turkey also exported between 10 and 13 million winter aconite (*Eranthis hymenallis*) and unknown numbers of grape hyacinth (*Muscari* spp.) and *Crocus* species. In 1986, Turkey exported at least one million *Cyclamen* tubers.

Even the crown imperial, *Fritillaria imperialis*, is still collected in Turkey, despite its widespread availability from propagation.

Other types of bulbs that are collected from the wild formerly were sought primarily by specialists, but now are entering the general market. Old favorites, such as *Narcissus* species *triandrus albus*, or angel's tears, endangered now through over-collection, are still sold. Unknown numbers of *Narcissus* are being collected in Spain and Portugal; Turkey exports

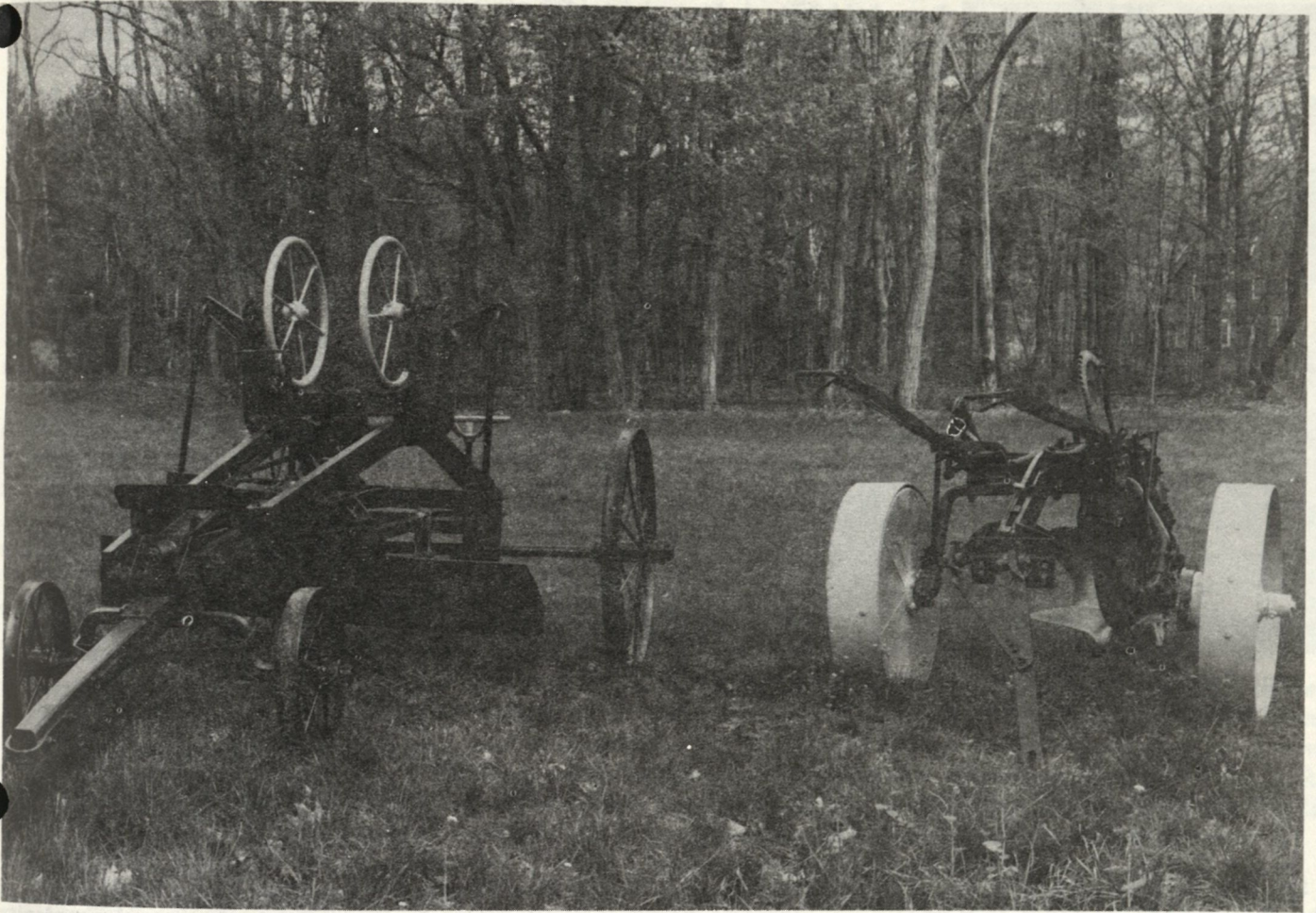
perhaps 500,000 bulbs each year.

Collecting is not limited to the Mediterranean region. The trout lily, or dog-tooth violet, *Erythronium americanum*, is collected from its habitat in eastern North America, then offered for sale "direct from the (Dutch) grower"!

WE DO NOT YET KNOW which species are being forced to the brink of extinction by this trade. However, botanists in Turkey have expressed concern about the trade in snowdrops, giant summer snowflake (*Leucojum aestivum*), the sea daffodil (*Pancratium maritimum*), two species of *Sternbergia*, crown imperial, *Lilium candidum*, and *Tulipa pulchella humilis*. British botanists are concerned about these and several other species, including *Cyclamen* and the winter aconite.

Several species of tulip are threatened in their native habitats in Central Asia and the Caucasus Mountains. Included are *Tulipa dasystemon*, *T. schrenkii*, and *T. tarda*. We do not know whether the specimens of these and other tulip species sold in the United States are of wild or propagated origin.

Gardeners who wish to avoid purchasing wild-dug plants face a challenge. Virtually none of the catalogs identifies whether the bulbs offered for sale are of wild or propagated origin. Statements that bulbs are "direct from Holland" are no guarantee of propagation, for that country re-exports wild-dug plants as well as propagates. The cautious buyer must inquire about the origin of each type of bulb that he or she is considering. We suggest that you ask, "Did you propagate these bulbs in your nursery from seeds or offshoots? If you obtained these bulbs from a supplier, do you know that the supplier propagated them?" If the dealer evades the question or cannot answer to your satisfaction, you may wish to avoid purchasing that species from that dealer.



The Connecticut Antique Machinery Association is dedicated to the preservation of agricultural and pre-industrial machinery used by our ancestors.

The World Before Microchips

Text and Photos
by
Alexander Thomas
Environmental Intern

EVIDENCE OF OUR STATE'S RICH HISTORY and culture may be found almost everywhere. Now, one more focal point of our history is the Connecticut Antique Machinery Association. In fact, if all

goes CAMA's way, by the fall of 1987 the Association, in conjunction with the Connecticut Historic Commission, will have erected an educational complex devoted to the display of agricultural and

pre-industrial machinery used by our ancestors.

Since its founding in early 1983, CAMA has grown from "a small group of serious hobbyists into a non-profit historical and educational museum of agricultural and industrial machinery," writes Robert Hungerford, president of CAMA. In 1984, CAMA leased from the state a 14-acre parcel of land on which it has finalized plans to start construction of its first permanent exhibit.

Adjacent to CAMA's eight-acre clearing, the future site of the Association's museum, is the Sloane-Stanley Museum. This museum, which is maintained by the Connecticut Historic Commission, boasts an excellent display of early American artifacts. The reason for erecting the CAMA museum so close to the Sloane-Stanley Museum, according to Joseph Hickey, planning analyst with DEP's Office of Parks and Recreation, is that "the two museums represent a time line of history. The idea of critical mass is a key one here." "The two museums, by virtue of their proximity, will attract more people than they would if they were separated from each other." With the Sloane-Stanley's emphasis on early America, and CAMA's representation of the pre-industrial phase of American culture, Hickey says the two together will demonstrate the progression of American technology.

IT IS THIS DEEP CONCERN for preserving our ancestral heritage that binds together the members of CAMA. Since its founding, the Association has enthusiastically celebrated the restoration of antique agricultural and industrial machinery. After an exhaustive search for a "permanent home" for these displays, the DEP agreed to lease to CAMA a 14-acre parcel of land in Kent, on the Housatonic River. Members of CAMA have cleared the lot of trees, stumps, and brush, installed a well and electrical service, and even volunteered to do additional work on Historic Commission property. Many hours and sore backs contributed to what is now a beautiful eight-acre clearing waiting for the construction of CAMA's first building.

CAMA is in the final stages in the quest for the first permanent structure. "They want to keep it as rustic as possible," says Hickey of what CAMA will call the Industrial Hall.

THE INDUSTRIAL HALL will house the Association's large steam and diesel engine collection. Included in this exhibit will be CAMA's enormous steam engine from the old Tiffany and Pickett factory. "It's really huge," says Hungerford, "a dinosaur of the machine age." With its 16-inch bore and 33-stroke cylinder, the antique generator can create 150 horse-power. In fact, adds Hungerford, the engine

is so big that its concrete footings must be laid prior to constructing the building around the machine. These engines are rare (in use only from around 1865-90) and CAMA is fortunate to have acquired one.

Beyond this, CAMA has plans to construct a work shed in which to repair their machinery, and to install a 50-foot windmill. CAMA will also maintain several seasonal agricultural exhibits.

Each fall CAMA sponsors a festival of antique machinery as a celebration of Connecticut's cultural heritage. Held on CAMA's grounds, the festival features antique engines and classic automobiles, craftsmen from around the state, and food and refreshments. Operational exhibits at the event include an 1880s oat thresher, an antique cordwood saw, and the famous Tiffany and Pickett engine.

In 1985, the first year of the festival, only three days after Hurricane Gloria did her damage, CAMA entertained some 1500 people on its site in Kent. Last year, attendance jumped to 2000. This fall, CAMA plans to expand its exhibits and attract even more people.

This year the festival will be held on September 27, from 10 a.m. to 4 p.m. at CAMA's property in Kent.

IN A WORLD OF MICROCHIPS AND VCERS, CAMA is working to restore our awareness of our rich cultural heritage, and of a time when things were a little more simply. There is a purity and honesty about these old machines, and that is something that might get forgotten in the fast-paced complexity of our present age of high-tech. We can thank the Connecticut Antique Machinery Association for helping us not to forget.



The CAMA museum will be erected next to the Sloane-Stanley Museum in Kent. Pictured here is one of the historic buildings on the grounds.

The Bulletin Board

Vacation Guide

The newest edition of the *Connecticut Vacation Guide* is now available free from the Department of Economic Development, according to Commissioner John J. Carson.

The color-illustrated magazine-style *Guide* is the state's major tourism publication, distributed free in response to requests from all over the country.

The "Attractions" listing in the *Guide*, with more than 200 entries, includes museums, historic homes, arts and crafts centers, amusement parks, nature preserves, and wineries in all parts of the state.

Another major section shows lodgings — hotels, motels, country inns, resorts, spas, bed and breakfast establishments, and hotels.

The *Guide* also lists golf courses open to the public, boat rides, campgrounds, a calendar of special events, salt water fishing excursions, theaters and performing arts centers, and activities for fall and winter.

For a copy of the 1987-88 *Connecticut Vacation Guide*, write Department of Economic Development, 210 Washington Street, Hartford, CT 06106, or phone toll-free in Connecticut 1-800-842-7492.

AIAI Events

The following events are scheduled at the American Indian Archaeological Institute in Washington, Connecticut:

Saturday, July 11, 1987, from 10 a.m. to 3 p.m. Participants will make a leather pouch and decorate it. Leather and quills are provided. Tuition: \$30 for non-members, \$25 for AIAI members.

Saturday and Sunday, July 11 and 12, 2:30 p.m. The Small World



DEP Deputy Commissioner Dennis DeCarli presents a letter of appreciation to Mr. Arthur Bousquet, owner of the Clam Castle in Meriden. The presentation was in recognition of Bousquet's donation of a new horse trailer to the horse patrol unit at Hammonasset Beach State Park. Looking on are John Johnson, DEP Bureau of Law Enforcement, David Bousquet, and Leo Jones, horse patrolman. (Photo: R. Paler)

Film Festival films: "Leisure," and "Powwow" (Indian Dances).

Saturday and Sunday, July 18 and 19, 10 a.m. to 4 p.m. Woodland Indian Crafts Demonstrations: Woodcarving.

Saturday and Sunday, July 18 and 19, 2:30 p.m. The Small World Film Festival video "Native American Art: Lost and Found Traditions."

Saturday and Sunday, July 18 and 19, 2:30 p.m. The Small World Film Festival film: "History, Layer by Layer."

Sunday, July 26, 1 p.m. to 4 p.m. Stone tool workshop for kids. Registration is limited to people 10 years or older. Fee: \$20 for AIAI members, \$25 for non-members.

Saturday and Sunday, August 2 and 3, 2:30 p.m. The Small World Film Festival: "Mohawk Basketmaking — A Cultural Profile."

Sunday, August 2, 10 a.m. to 3 p.m. Flintknapping workshop by Jeff Kalin. Registration: \$23/AIAI members, \$29/non-members.

Saturday and Sunday, August 8 and 9, at 2:30 p.m. The Small World Film Festival: "Calumet Pipe of Peace."

Saturday and Sunday, August 15 and 16. Sixth annual "Under the Sun" crafts demonstration: American Indian headwear.

Saturday and Sunday, August 15 and 16, 2:30 p.m. The Small World Film Festival: "Working Places."

Saturday and Sunday, August 22 and 23, 2:30 p.m. The Small World Film Festival: "Completing Our Circle," and "The Hat: Is This War Necessary?"

Saturday and Sunday, August 29 and 30, 2:30 p.m. The Small World Film Festival: "Zen Culture, Zen Spirit."

Admission to the AIAI is by membership or a donation of \$2/adults and \$1/children ages 6-18. AIAI is accessible to the handicapped. For further information, phone (203) 868-0518.

The Summer Spectacular at Haddam Meadows

One of the biggest and most spectacular of Connecticut's summer events, "The Quinnehtukquet Rendezvous and Powwow — 1987," will take place at Haddam Meadows State Park, in Haddam, on August 21, 22, and 23.

The weekend will combine one of the largest Indian powwows in New England with a black powder muster and demonstrations of 17th through 19th century American life. As many as 700 "mountain men" from all over the country are expected to participate, as well as members of 30 to 40 Indian tribes. Authentic pre-Civil War and Native American arts and crafts and foods will be available. The event is sponsored by the Spirit of Quinnehtukqu, Inc.

tukqu, Inc.

Activities will take place on Friday, August 21, from 9 a.m. to 7 p.m.; Saturday, August 22, from 9 a.m. to 7 p.m.; and Sunday, August 23, from 9 a.m. to 7 p.m.

Advance admission is \$1.50 for adults (12 and over) and 75 cents for children six through 12. Send stamped, self-addressed envelope and check to "Spirit of Quinnehtukqu, Inc.," 247 Tolland Street, East Hartford, CT 06108. Admission at the gate is \$2.00 for adults, \$1.00 for children. For further information, phone 282-1404.

Directions: From Route 9, take Exit 7; take Route 82 to Route 154; follow 154 north to the park. ■



The colorful and exciting Tonantzin Aztec dancers will appear at the 1987 Powwow and Rendezvous. (Photo: Joe Laforte)

Toward the Classroom

by
Eileen O'Shaughnessy
Environmental Intern

Alberto Mimo, an environmental educator with the DEP's Information and Education Unit, coordinates the "Search" program, through which highly motivated high school students learn first-hand about the environment and how to improve it.

The program stresses the importance of awareness of and concern for the environment. Students from urban and suburban areas learn about environmental decision-making in an increasingly technological society.

Students from New Britain, Crosby, Kennedy, Southington, and Bulkeley high schools, Canton elementary schools, and Southington Vocational Agriculture school have participated in the Search program. During the school year students

meet for discussion and field trips after school. Interested students are encouraged to participate in the program.

There is also a summer Search program offered at no cost to students. In this program, students spend four days camping, canoeing, and hiking while doing research in the field.

Food has been donated for previous summer trips by the Connecticut Food Stores Association and Highland Park Supermarket. Canoes were provided by the Connecticut River Watershed Council. Park Manager Donald Grant and the summer crew of Gillette Castle State Park provided the students with a camping site and tours of the castle.

Interested students should contact their school guidance counselors.

Jabberwocky, the drama ensemble

under the direction of Lisa Hawley and Ann Shapiro, is presenting a production for schools entitled, *Who Dunnit? The Case of the Disappearing Species*. This production is intended for grades seven through 12. *Who Dunnit? . . .*, a murder mystery which stars a cockroach detective and a mosquito murder victim, encourages its audience to become involved in environmental matters. The play points out pesticide use, hazardous waste contamination, and destruction of critical habitats as possible murderers of species. With humor, music, and exceptionally creative sets and costumes, Jabberwocky presents important issues in an entertaining and exciting manner.

The DEP has a supplementary educational package with explanations of key environmental terms found in the play and fact sheets on endangered species. For further information, phone 566-8108. ■

Trailside Botanizer

Canada Lily

by
Gale W. Carter
Illustration by
Pam Carter



The conspicuous flower of the Canada lily varies in color from lemon yellow to orange. It has many reddish brown spots. Occasionally a red form appears, to the delight of the nature photographer. Each flower is curved outward to give a bell-like appearance. Some

people refer to the flowers as "witches' caps."

The flower has three sepals and three petals that are the same color. When this feature is present in a flower, the colored parts are called tepals. Each flower also has six stamens and a long pendant pistil that has a three-parted stigma at its top. The blooming time for the Canada lily is from June to August. The number of flowers present on any one plant varies from one to 20 or more. When there are many flowers present, they give the appearance of a candelabra.

The flower of the Canada lily is well adapted for cross-pollination. Nectar guides in the form of spots on the flower and a groove in the center of each tepal help to lead bees to the nectar.

The underground bulbs were once eaten by Indians as a cooked vegetable or were used as a thickener for soups.

©1987, Gale W. Carter

Letters to the Editor

We enjoy receiving the *Citizens' Bulletin* after a few years absence.

We hope you will make an effort to list all pertinent legislation that readers might want to respond to — while their input counts. It used to be done, so it can be done again.

We object strongly to the *Bulletin* subscription ad illustration with a gun pointed at the viewer. What an incredibly threatening and deadly piece of artwork. This is not compatible with care of our environment.

Mrs. Barrie Collins
Bethany

cerned enough about the environment to wish to have meaningful input into legislation. We have found that because of the time it takes to get the *Bulletin* out, it simply is not possible for us to keep our readers informed on what is really the day-to-day activities of the Legislature. There are other mechanisms by which this timely information is disseminated, for example, the Connecticut Fund for the Environment and the Environmental Caucus. For a complete listing of these and other organizations, please check the FYI article for June, 1987.

In regard to the Clint Eastwood subscription ad: Well, sometimes the jokes work, sometimes they don't. We're sorry if the ad was found offensive. I think, though, that regular readers of the *Bulletin* know where our heart is. Ed.

Thank for your letter. We're glad you enjoy getting the *Bulletin* again. It is wonderful that you are con-

Endnote

"The difficulty with theory, however, is that it is endless."

Yasutani Roshi



The Citizens' Bulletin continues to amaze.

Please send a Citizens' Bulletin subscription to:

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